

Serial No. 10/589,376  
Response to Office Action dated October 18, 2010

PATENT  
Docket: CU-5009

### REMARKS

Claims 7-11, 13, and 15-21 are pending in the above referenced application and have been examined on their merits in the Office Action dated October 18, 2010. In the Office Action, the claims are rejected under 35 U.S.C. §112, second paragraph, and are rejected under 35 U.S.C. §103(a). The rejections set forth in the Official Action have been overcome by amendment or are traversed by argument below.

In the Claims, please amend claims 7, 9-11 and 16-21. Support for the amendments can be found in the original disclosure. Other amendments are made for clarity. No new matter has been added as a result of the amendments. The amendments to the claims can be viewed in the Amendments section in the Listing of claims beginning on page 3 of this paper.

Claims 7-11, 13 and 15-21 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Applicant submits that the claim amendments are responsive to and overcome the rejection of the claims.

Specifically, the terms "region" and "portion" are used to distinguish parts of the cell culture patterning substrate exhibiting each characteristic. When a part referred to as "region" contains a part of different characteristics, the latter part (which has different characteristics) is referred to as "portion". More specifically, the cell culture "region" comprises the "cell adhesion portion" and the "cell adhesion auxiliary portion" in claim 7. Furthermore, the "layer" is formed on the base material and is a coating film containing the predetermined material. In the present invention, at least the cell adhesive layer is formed as the cell adhesion portion.

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The Applicant notes that the reason that the cell adhesion auxiliary portion and the cell non-culture region do not comprise any "layer" in claims is because the cell adhesion auxiliary portion and the cell non-culture region may be, for example in an embodiment, be a region where the base material is exposed or may be a coating film formed on the base material and containing the predetermined material (see page 17, lines 14-26 of the specification).

For example, in FIG. 6B, the region other than the cell culture region (cell adhesion auxiliary portion 4 and cell adhesive layer 7 which is the cell adhesion portion) on the base material, that is the part where the base material is exposed, corresponds to the cell non-culture region. In FIG. 6B, a layer containing the decomposed products or denatured products of the cell adhesive material is formed as the cell adhesion auxiliary portion 4.

Accordingly, the Applicant submits that the terms "region", "part", and "layer" are sufficiently distinguished and clear. The Applicant requests withdrawal of this rejection.

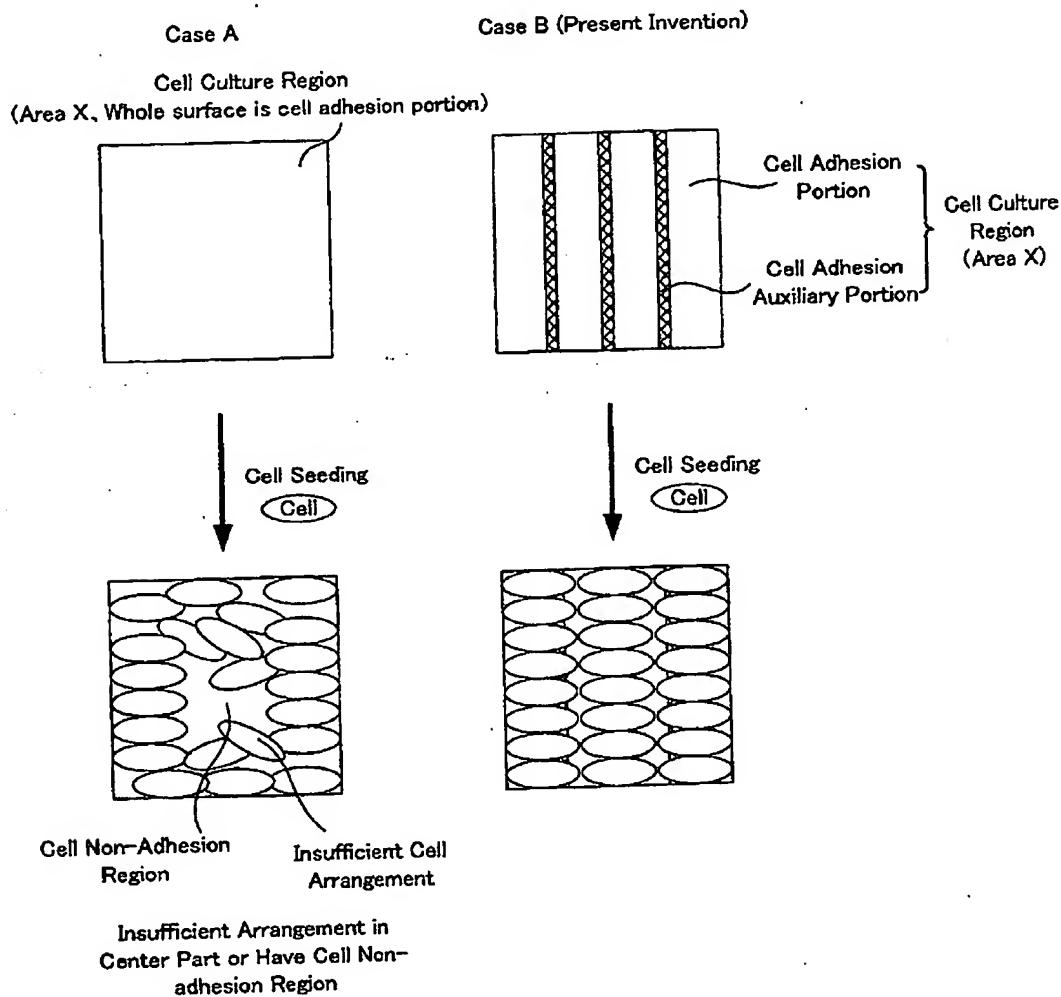
Regarding the objection to the phrasing "area of the cell culture region", the Applicant has amended the phrase in claims 7 and 21 to recite "area where cell arrangement is insufficient or where a cell non-adhesion region is made in the cell culture region made of only the cell adhesion portion."

In the cell culture region made only by the cell adhesion portion, when the area (such as area X) is made wider than the certain size, the cell non-adhesion region may be made or the cell arrangement may become insufficient as illustrated by case A in the below figure. However, as illustrated by case B, even if the area

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size of the cell culture region is made to area X, no cell non-adhesion region or the like is made because the cell culture region comprising the cell adhesion auxiliary portion is used.



The Applicant submits that the rejection is overcome by amendment or traversed by the above remarks. Withdrawal of this rejection is respectfully solicited.

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The Examiner rejected claims 7-11, 13, and 15-21 under 35 U.S.C. §103(a) as being obvious and unpatentable over Singhvi (U.S. 6,368,838). The Applicant respectfully disagrees and submits that the claims are non-obvious and patentable.

The cell culture patterning substrate of amended claim 7 comprises the cell culture region whose area is such that an arrangement of the cell in the center becomes insufficient or the cell does not adhere in the center when the cell is cultured in the cell culture region which does not contain the cell adhesion auxiliary portion.

By comprising the cell adhesion auxiliary portion, the present invention attains the effect of making the arrangement of cells excellent even when the cell culture patterning substrate comprises the cell culture region. (See Application, page 4 line 16 to page 5 line 4 of the specification.)

In contrast, Singhvi is completely silent as to the cell culture region having such an area.

Furthermore, Singhvi discloses that cells are formed such that cells on the cell culture region do not bridge each other over the cell adhesion inhibiting portion when cells are likely to peel off from the culture plate surface. (See Singhvi column 13 line 2 to column 14 line 7.) Therefore, unlike amended claim 7, Singhvi teaches away from comprising a cell culture region having an "area...such that an arrangement of a cell in a center of the cell culture region becomes insufficient or a cell does not adhere in the center when the cell is cultured in the cell culture region which does not contain the cell adhesion auxiliary portion."

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Clearly the present invention is non-obvious and not easily attained by Singhvi. The above remarks are also applicable to claim 21 and claims 8-10 and 15-18 which are dependent on claim 7. The Applicant respectfully submits, therefore, that since all of the features of the claims are not disclosed or suggested by Singhvi, the claims are non-obvious and patentable. Withdrawal of the rejection is respectfully solicited.

Claim 11 which provides a cell culture region wherein the area is such that the cells cannot arrange regularly when the boundary between the cell culture region and the cell-non-culture region is a straight line. In contrast, Singhvi is completely silent regarding such a cell culture region.

Furthermore, as discussed extensively above, Singhvi teaches away from making its area to that of the present invention because Singhvi discloses adjusting the area of the cell culture region to an area which can control the form and the like of the cells. Clearly, claim 11 is non-obvious because all of the features are not taught by Singhvi. The same is true for claims 13, 19, and 20 which are dependant from claim 11. The Applicant respectfully requests that at least for this reason, the rejection of these claims be withdrawn.

Regarding the boundary between the cell culture region and the cell non-culture region of the present invention being the predetermined shape, the Examiner comments that the shape of the cell culture region in Singhvi is disclosed to be of "any size or shape". (See Office Action page 6 lines 9-16.)

The description "any size or shape" is explained in the paragraph starting with "By "island", ..." in column 11 lines 40-55 of Singhvi. As specific examples, as explained in columns 12-14, Singhvi discloses only the following methods as methods to control the shape and the like of cells: a method of adjusting the area of the cell culture region and a method of adjusting the width of the cell adhesion

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inhibiting region which separates the cell culture regions. Therefore, the description "any size or shape" of Singhvi should be read as a shape and the like which are necessary to make the cell culture region into the desired size and, unlike the present invention, it is not to explain that the alignment and others of cells are controlled by the shape of the boundary between two regions. A person skilled in the art, therefore, would have found it difficult to make the boundary shape of the two regions to the desired shape even if Singhvi discloses to control the shape of the cell form and to make the shape of the cell culture region of "any size or shape".

The Applicant respectfully submits, therefore, that the claims are non-obvious and patentable and respectfully requests that the Examiner withdraw the rejection of the claims.

### CONCLUSION

The Applicant believes that this Amendment is responsive to all points raised in the Office Action dated October 18, 2010. The Applicant respectfully contends that all conditions of patentability are met in the pending claims and requests that the amendments be entered into the record. The Applicant respectfully submits that this Application should be in condition for allowance and respectfully requests favorable consideration.

Respectfully Submitted,

  
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